Montana Department of Natural Resources and Conservation
Water Resources Division
Water Rights Bureau

ENVIRONMENTAL ASSESSMENT
For Routine Actions with Limited Environmental Impact

Part I. Proposed Action Description

1. Applicant/Contact name and address:

Missoula City-County Public Library c/o Honore Bray 301 E Main St Missoula, MT 59802	Morrison-Maierle Inc c/o Mark Brooke 1 Engineering Pl Helena, MT 59602-0241

2. Type of action: Application for Beneficial Use Permit No. 76M 30121581

3. Water source name: Groundwater – Missoula Aquifer

4. Location affected by project: N2NESW of Section 22, T13N, R19W, Missoula County

Narrative summary of the proposed project, purpose, action to be taken, and benefits: Applicant proposes to divert water at a maximum rate of 500 gallons per minute (GPM) up to a diverted volume of 806.6 acre-feet (AF) from January 1 to December 31 for geothermal heating and cooling. The proposed diversion (extraction well) is a 140-foot-deep groundwater well fitted with a submersible pump, located in the N2NESW of Section 22, T13N, R19W, Missoula County. The point of diversion and place of use are located in the Middle Clark Fork River Basin (76M), which is an area that is not subject to any water right basin closures or controlled groundwater restrictions. The geothermal heating/cooling pump system consists of two wells - one for extraction and another for injection, a submersible pump, a heat exchange system, a variable frequency drive (VFD), and BTU flow meter for collecting monthly usage. The extraction well will have a 25 HP submersible pump capable of diverting a maximum of 500 GPM. The submersible pump will extract water from the Missoula Groundwater Aquifer, approximately 120 to 140 feet below ground surface, and deliver it through the heat exchanger and on to the injection well where water is returned to the same aquifer. The injection well is located approximately 180 feet west of the extraction well. The injection well has a total depth of 130 feet and the is screened from 110 to 130 feet. The DNRC shall issue a water use permit if an applicant proves the criteria in 85-2-311 MCA are met.

5. Agencies consulted during preparation of the Environmental Assessment:

Montana Natural Heritage Program	Species of Concern
Montana Department of Fish, Wildlife and Parks	2005 Dewatered Stream List
Montana Department of Environmental Quality	303(d) list of impaired streams

Part II. Environmental Review

1. Environmental Impact Checklist:

PHYSICAL ENVIRONMENT

WATER QUANTITY, QUALITY AND DISTRIBUTION

Water quantity *- Assess whether the source of supply is identified as a chronically or periodically dewatered stream by DFWP. Assess whether the proposed use will worsen the already dewatered condition.*

The 2005 Montana Department of Fish, Wildlife & Parks Dewatering Concern Areas list does not identify Lower Clark Fork River as chronically or periodically dewatered. The proposed appropriation will not provide any opportunity for Lower Clark Fork River to experience a reduction in flows as the use is non-consumptive.

Determination: No impact.

Water quality *- Assess whether the stream is listed as water quality impaired or threatened by DEQ, and whether the proposed project will affect water quality.*

The proposed appropriation is for groundwater. Water diverted from the extraction well will be returned to the aquifer via an injection well and will not affect water quality of the nearest surface water sources, the Lower Clark Fork River and Rattlesnake Creek. There is no groundwater connectivity between the Missoula Valley Aquifer and Rattlesnake Creek. DEQ's 2016 303(d) list does not include Lower Clark Fork River above its confluence with Flathead River.

Determination: No impact.

Groundwater *- Assess if the proposed project impacts ground water quality or supply. If this is a groundwater appropriation, assess if it could impact adjacent surface water flows.*

The proposed appropriation is for an open-loop geothermal heating/cooling system. Water diverted from the aquifer will be returned to the same aquifer approximately 180 feet west of the point of diversion. As the proposed use is non-consumptive and will be returned to the source from which it is drawn, there will be no impacts to groundwater quality or supply, nor will it affect the adjacent surface water source, the Lower Clark Fork River.

Determination: No impact.

DIVERSION WORKS - *Assess whether the means of diversion, construction and operation of the appropriation works of the proposed project will impact any of the following: channel impacts, flow modifications, barriers, riparian areas, dams, well construction.*

The applicant proposes to install one extraction well and one injection well. A 25 horsepower (HP) pump will pull 500 GPM up to a total of 806.6 AF annually which will be re-injected into the aquifer through an open-loop system. The injection well is located approximately 180 feet west of the extraction well. The proposed use of groundwater will not impact any channels, cause adverse effect due to flow modifications, create any barriers or impact riparian areas, dams, or other existing or future wells.

Determination: No impact.

UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Endangered and threatened species - *Assess whether the proposed project will impact any threatened or endangered fish, wildlife, plants or aquatic species or any "species of special concern," or create a barrier to the migration or movement of fish or wildlife. For groundwater, assess whether the proposed project, including impacts on adjacent surface flows, would impact any threatened or endangered species or "species of special concern."*

The Montana Natural Heritage Program (MNHP) was contacted to determine if there are any threatened or endangered fish, wildlife, plants or aquatic species or any "species of special concern", that could be impacted by the proposed project. The MNHP identified the following species of concern: Bull Trout, Westslope Cutthroat Trout, Great Blue Heron, Evening Grosbeak, Harlequin Duck, Clark's Nutcracker, Cassin's Finch, Varied Thrush, Fringed Myotis, Hoary Bat, Grizzly Bear, Western Skink, Stygobromus tritus (subterranean amphipod), Austrotyla montani (millipede) and the area has been identified as a bat roost for non-cave dwelling bats. In addition, the following plant species of concern have been identified: Alpine Collomia, Stalk-leaved Monkeyflower, Obscure Evening-primrose, and Spiny-spore Quillwort.

The location of the proposed geothermal system is in an area that supports commercial and residential development. There will be no changes and any impacts to the above-listed species have likely already occurred as a result of prior land conversions. It is unlikely that any additional impacts will occur as a result of the proposed change.

Determination: No significant impact.

Wetlands - *Consult and assess whether the apparent wetland is a functional wetland (according to COE definitions), and whether the wetland resource would be impacted.*

The proposed project does not create or impact any wetlands.

Determination: No impact.

Ponds *- For ponds, consult and assess whether existing wildlife, waterfowl, or fisheries resources would be impacted.*

The proposed geothermal heating and cooling system will not create nor eliminate any ponds.

Determination: No impact.

GEOLOGY/SOIL QUALITY, STABILITY AND MOISTURE - *Assess whether there will be degradation of soil quality, alteration of soil stability, or moisture content. Assess whether the soils are heavy in salts that could cause saline seep.*

Construction of the proposed extraction and injection wells will cause short-term soil disturbance. The area of the proposed water use has previously been disturbed and no additional degradation of soil quality, soil stability, or moisture content is expected. Soils at the place of use are listed as urban land and riverwash, unlikely to be susceptible to saline seep.

Determination: No impact.

VEGETATION COVER, QUANTITY AND QUALITY/NOXIOUS WEEDS - *Assess impacts to existing vegetative cover. Assess whether the proposed project would result in the establishment or spread of noxious weeds.*

The site where the proposed wells are located is within a mixed commercial and residential area. The parcel will include the library, a parking area, and landscaping. It is the responsibility of the landowner to maintain weed control at the place of use for this water right.

Determination: No impact

AIR QUALITY - *Assess whether there will be a deterioration of air quality or adverse effects on vegetation due to increased air pollutants.*

Deterioration of air quality and/or adverse effects on vegetation due to increased air pollutants is not expected. The pump used to extract water from the groundwater aquifer will create a minimal impact to air quality standards in the Missoula Valley.

Determination: No significant impact.

HISTORICAL AND ARCHEOLOGICAL SITES - *Assess whether there will be degradation of unique archeological or historical sites in the vicinity of the proposed project if it is on State or Federal Lands. If it is not on State or Federal Lands simply state NA-project not located on State or Federal Lands.*

This parcel is located on public land; however, the parcel has supported residential development and buildings in its past use. There will be no further degradation of the site as a result of the proposed geothermal heating/cooling system for the new facility. There are no known unique archeological or historical sites on or near the proposed project.

Determination: No impact.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AND ENERGY - *Assess any other impacts on environmental resources of land, water and energy not already addressed.*

All impacts to land, water, and energy have been identified and no additional impacts are anticipated.

Determination: No impact.

HUMAN ENVIRONMENT

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS - *Assess whether the proposed project is inconsistent with any locally adopted environmental plans and goals.*

The Department finds no locally adopted environmental plans or goals relevant to the requested water use proposal for geothermal heating and cooling.

Determination: No impact.

ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES - *Assess whether the proposed project will impact access to or the quality of recreational and wilderness activities.*

The proposed project will not inhibit, alter or impair access to the present recreational opportunities in the area. The project is not expected to create any significant pollution, noise, or traffic congestion in the area that may alter the quality of recreational opportunities.

Determination: No impact.

HUMAN HEALTH - *Assess whether the proposed project impacts on human health.*

No impacts to human health were identified.

Determination: No impact.

PRIVATE PROPERTY - *Assess whether there are any government regulatory impacts on private property rights.*
*Yes___ No_**X**_ If yes, analyze any alternatives considered that could reduce, minimize, or eliminate the regulation of private property rights.*

This property is owned by City of Missoula and is not private.

Determination: No impact.

OTHER HUMAN ENVIRONMENTAL ISSUES - *For routine actions of limited environmental impact, the following may be addressed in a checklist fashion.*

Impacts on:

(a) Cultural uniqueness and diversity? None identified

(*b) Local and state tax base and tax revenues?* The library utilizes taxpayer funds to provide services to the public

(c) Existing land uses? None identified

(*d) Quantity and distribution of employment?* City of Missoula is a public employer

(e) Distribution and density of population and housing? None identified

(f) Demands for government services? None identified

(g) Industrial and commercial activity? None identified

(h) Utilities? This system is designed to provide heating and cooling to Missoula Library

(i) Transportation? None identified

(j) Safety? None identified

(k) Other appropriate social and economic circumstances? None identified

2. *Secondary and cumulative impacts on the physical environment and human population:*

Secondary Impacts: None identified

Cumulative Impacts: None identified

3. ***Describe any mitigation/stipulation measures:***

No reasonable alternatives were identified

4. *Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:*

No alternative identified.

PART III. Conclusion

1. Preferred Alternative: N/A

2 Comments and Responses: N/A

4. *Finding:*
*Yes___ No_**X**_ Based on the significance criteria evaluated in this EA, is an EIS required?*

If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action:

An EA is the appropriate level of analysis for this proposed action because no significant impacts have been identified as a result of the proposed action.

Name of person(s) responsible for preparation of EA:

Name: Amy Groen
Title: Hydrologist/Specialist
Date: August 15, 2019